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TEACHER'S GUIDE:

COMPANION TO

BARTHOLOMEW'S PRIMARY SCHOOL DRAWING CARDS.

SERIES ONE.

FOR TEACHERS AND STUDENTS USING BARTHOLOMEW'S DRAWING CARDS.

BY

MISS J. H. STICKNEY,

SUPERINTENDENT OF THE BOSTON TRAINING SCHOOL.

NEW YORK:
WOOLWORTH, AINSWORTH, AND COMPANY,
1870.

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INTRODUCTORY REMARKS.

It is often said of sciences depending upon logical sequences, that a right beginning insures a successful end. The same idea, under a variety of familiar proverbs, is accepted also as a truism for all such results, whether mental, moral, or physical, as depend for their excellence upon correct habits.

Drawing, as a science and an art, is the product of these two factors: an intelligent comprehension of the laws which govern representation, and an eye and hand trained to express them. That this idea is still very imperfectly realized, is shown by the fact, that while a measure of respect, nearly allied to reverence, is paid to those whose attainments have brought them into notice, comparatively few believe, for themselves, in the practicability of attempting to follow them. It would seem that some mysterious goddess, under the name of Genius, was believed to monopolize, and only in rare cases bestow, the magical gift.

The same obstacle stood in the way of Penmanship: until within a few years the number who wrote with ease and elegance being but little greater than that of

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those who could draw; now, in our graded schools, every child becomes a penman.

Whatever the truth may be in reference to the aid of special genius and inherited taste, and whatever the difficulties of those who later in life attempt superficially to add drawing to their accomplishments, it has been abundantly demonstrated that, if *commenced early*, and *well taught*, the results of drawing may be as certain, and as universal, as are those of any other branch of study. I do not mean that all our children will be artists, architects, or designers, nor do I desire that it shall be made a speciality in our school appointments. It is only important that it shall take its place with other studies, and do its legitimate work. It is not difficult to anticipate the character of these results. An appreciation of art and beauty will be awakened in the masses, at an impressible period in their lives, which will exert an incalculable influence upon the appointments of their future; all will acquire skill enough to represent with ease and accuracy any needful combination of forms, as an aid to memory for themselves, or a means of illustration for others; and *many* will discover in themselves talent, which, if it does not in all cases determine a future career, will become a source of unspeakable enjoyment as a recreation from other toils. To the future artist, help will be given at an earlier period than has hitherto been possible; and to the mechanic, it will be a matter of dollars and cents by the discipline which develops a perception of the truths of form; for this

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ability to *see truly* constitutes the principal difference among workmen who have to do with forms.

But, that this may be realized, the two points first mentioned must be diligently observed, viz., early and well-considered beginnings and correct habits. It is not that, in the beginning, any very remarkable teaching ability is requisite. It is the office of the book logically to arrange, and clearly to express, the points to be considered, with such suggestions of appliance and method as shall supply to teachers, who, by the present organization of our schools, are unable to devote themselves to any single branch of study, all they need for a beginning; and a beginning made, they will learn for themselves, *by teaching*, how to teach.

It should be borne in mind, for the encouragement of the teacher, that we are not to labor for wonderful results in children *as* children. The subject is not one for ready result; its fruits cannot, by any amount of forcing, be brought forward in a single year. If an interest is awakened, good habits inculcated, and a reasonable promise given of ultimate skill, with steady growth meanwhile, we may feel rewarded, and go on with our teaching with renewed hope; and in this fact of gradual development lies a reason for beginning early. A child who, at twelve or fourteen, begins to cover the immaculate page of an expensive drawing-book of difficult and involved patterns, with lines which afford the eye no pleasure, suffers untold mortification; his eye is educated to discriminate, while his hand is

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unskilled and awkward; but in the child at six there is more of harmony in the development of faculties, and if, from this time, they can be educated simultaneously, the discouragement may be avoided, more elementary combinations may be employed, and the measure of success made more gratifying; or, if the result of the work should, at any time, be found infelicitous, a sponge will readily banish from the slate all disheartening recollections, and leave it free for new attempts.

The succeeding lessons, and others now in preparation, have been tried by children of five, six, and seven years of age, and the measure of success encourages the hope that they will be found to be adapted to the wants of other schools. Taken at their best, they make a beginning of the science, which, given as a legacy to the next generation, will prove of unspeakable value, not for the intrinsic excellence that is peculiar to them, but because *any* graduated course must do this; and, at the least, they will afford occupation and amusement for the weary time of sitting still between the opportunities of recitation, and, by doing this, relieve both child and teacher.

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EXPLANATIONS.

It will be observed that the usual order of instruction is inverted, straight lines being introduced in the more advanced lessons, and not at the beginning of the course. The reason for this will commend itself to every practical teacher. To draw accurately a straight line, in the various positions required, marks great proficiency in the art of drawing. The necessary practice is too monotonous, and the children weary with trying, and want pictures; in the giving of which difficulties multiply, while the power of the hand to execute is little increased. The dots and crosses divide the difficulty, while they contribute to the same end; e. g., the teacher's idea being a horizontal line, she first uses a succession of points, which she dictates, one by one, letting the position of each be a matter of special care; then, or afterwards, when they are prepared, repeats the same with very short lines, and finally locates *two* points at suitable distance, and between them stretches her line.

If carelessness is never allowed to become a habit, no time will be needed for its correction.

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Another reason for the course pursued is the opportunity it gives for the gradual introduction, in an easy and natural manner, of many words needful afterwards for dictation exercises, and useful, in a variety of ways, in other studies. It is desirable that, as far as is possible, *appropriate language* shall keep pace with the work in drawing.

The designs are intended as studies, rather than as pictures having beauty in themselves. The beauty of symmetry has been sought in them, as the element of most value in the culture of taste in the child.

It is recommended by the author that the cards shall be used in the order designated in the book. If the system is valuable, it is because there has been in the author's mind a philosophy which has controlled his methods, and which, unconsciously, will become a part of the child's habit of thought, if he is carried along in the same way. It is believed, too, that this will be the most simple for the teacher, contributing most rapidly to the acquisition of skill. Yet, because there is a philosophy underlying it, she will find it elastic, and will adhere to it most intelligently by holding to its idea, and not always to its form, adding when it is meagre, and condensing when it is too diffuse for her class.

The suggestions added will not be out of place if there are anywhere teachers who need them. Most teachers of experience have already learned their value for themselves.

1. Simultaneous working. By this I mean, that at the

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time of teaching, the parts of any entire lesson shall be given by themselves, and each finished by the entire class before the next is undertaken. This, at the expense of some effort and slowness in execution at first, it is worth the teacher's while to establish. The advantages of it are, first, that the teacher knows, in this way, at any moment, what every child is doing; and, second, the slow among them are excited to effort, and kept from falling behind, and the rapid and careless are prevented from badly executing the only partially-received idea.

2. The directions must be explicit. If the figure is first to be drawn from dictation, without the cards, the children must know where to place the first line, that the completed figure may find room and leave room for whatever else the teacher may wish to add subsequently. If consistent with the size of the slate, and the other work thereon during the session, figures drawn should be allowed to remain: they will detain the thought of the child upon the lesson, and help towards improvement in the next. In giving directions, the fewest words, consistent with clearness, should be used, the same direction always answering to the same thing.

3. A rule should be made and insisted upon, which will prevent the pupils from erasing their work. Those who have attempted to teach drawing upon slates will appreciate this need. Too often the moistened finger follows in the wake of every line, till, by some *lucky hit*, one is found worthy to stand. There is no skill in drawing till this is prevented. The teacher will do this

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most easily by forbidding anything to be erased except when permission is given. The plan indicated in the earlier lessons will assist in the establishment of this rule, and when difficult combinations come she will realize its value.

4. The pencil should be long and well sharpened; a separate pencil, kept by the teacher between the lessons, will most easily insure this. The uniformly bad habit of holding the pencil, contracted at first when fingers are weak and joints supple, must be corrected as soon as possible, both in drawing and writing. If the pencil is grasped between the thumb and first *two* fingers, and at the distance of a *full inch* from the point, it will aid in the correction of the child's way, without great difficulty perhaps. To insure this, the teacher may require her class to take their pencils in this way at the beginning of each drawing or writing exercise, and hold them for her to see, resting the elbow on the desk. They may also do the same when a line or figure is finished, and till the next is given, as a reminder to themselves of the correct way, and a sign to the teacher that they are ready for the next command.

5. In many schools the slate is so placed as to bring the long side parallel to the front of the desk, and the child sits with his right side to the desk, facing the left aisle. Whatever may be true in writing, the children should sit for drawing facing the desk, and the bottom of the slate should be parallel with the front of the desk, and removed, in most cases, a little from it — this

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to be regulated, however, by the height of the desk and the comfort of the scholar.

6. Every child should be furnished with a cloth or sponge, that the slate may be kept clean, and the child taught tidy habits of keeping it so.

7. The length and frequency of lessons must be made consistent with the other work to be done and the age of the children. In schools well graded, a daily lesson of fifteen or twenty minutes with the teacher, and an opportunity while the teacher is occupied with a part of the class for the remainder to reproduce the lesson given, will, in the three years given to primary methods in most places, accomplish all that is practicable if the time is well spent. After the cards have been finished as a dictation, the children should have them to copy. In some cases they may be studied with the teacher at the time of first drawing.

If an apology is needed for these detailed directions and suggestions, it only remains for me to say, that by preparing for the least skilled and experienced of teachers I do no harm to the others, and each item may find a place somewhere to aid in promoting the harmony and completeness of the work.

The cut on next page will show at a glance the method of attaching the cards to the slate. The card, containing the example for the day, is taken from the pack and placed in one of the grooves. There is a manifest advantage in this arrangement. When the copy lies on the desk, it is seen obliquely. Re-

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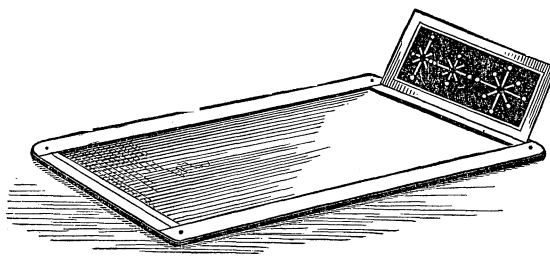
ceding parallel lines do not appear parallel in this case, and all figures are foreshortened; hence they appear distorted; and then again, with very young children, the copy is likely to be out of sight half the time — it being under the slate or on the floor. By this arrangement the copy is placed where it should be to be seen to advantage, and prevented from being soiled. It is directly in front of the pupil; he looks perpendicularly upon the card containing it, and the example presents to the eye its *actual form*. In addition to this, it does not *strain the eye* to look at it, as is the case when the copy is viewed obliquely. The teacher should always see to it that the cards are placed in the frame of the slate, as indicated, when the pupils are engaged either in writing or in drawing.

As a general rule, all drawings should be made on the side of the slate that is not ruled. The ruled side is intended for writing.



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INSTRUCTIONS.

CARD I.

Card I. has to do with three ideas — position, distance, and direction. It is impossible that the arrangement of dots on a card shall indicate what is in the author's mind in reference to the use of them; and, as the succeeding lessons are based upon something to be gained in the practice upon these initiatory ones, several lessons are needed to unfold the idea he desires to convey. The practice with dots is useful for pupils at any age, as a first exercise in drawing, and may be used in a great variety of ways to assist in training the eye and educating the mind to judge accurately of position and distance.

In making points, something larger than the dot subsequently used in drawing, and intended only for the eye of the person working, should be used, in order to be easily recognized by the teacher as she passes about among the children. On the other hand, they must not be too large. Those on the card may be taken as an average size; example will correct, in time, any difficulties of this kind among the children. It is intended

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that the lessons shall be simple enough for children during their first year at school; but if no systematic teaching in drawing has been done previously, they can be easily adapted to older children.

LESSON I.

Ex. 1. Aim: To accustom the children to understand and follow the directions of the teacher, and to give them the idea of dots placed *on a level* with each other.

When the preliminaries of arranging the copy (Card I.), placing slates, sitting in position, taking pencils, &c., have been attended to, the teacher directs the class *to find the centre of their slates.* She draws upon the board a rectangular figure in the form of the slate, and in the centre of this figure places a dot, that the children may understand what she means. When this has been done by the class, the teacher puts a second dot, on a level with the one first placed, and at a little distance from it, thus: . . and calls upon the class to observe what has been done; and, after this, to place a second dot upon their own slates, as indicated by the copy. She looks at the work of a few, and calls attention to the errors discovered by placing two dots on the board to indicate them, thus: —

In answer to particular questions, they should be

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required to say what, in each case, is wrong about the second dot; in the first example, "it is lower, or below the one first placed;" in the second, "it is higher, or above." The teacher asks where it *should be*, and leads the class to see, and then say, "It is neither higher nor lower on the card." She tells them that because one is neither higher nor lower than the other, we say they are *on a level;* then asks such questions as the following: —

What do we say of them? Why do we say they are on a level? When do we say dots are on a level? Spell by sound, that I may be sure you say it rightly, "l e v-e l."

The term is to be further illustrated to the children by holding an object, as a ruler, in a horizontal position. The floor and table, and the surface of still water may be referred to, and the class exercised in finding any level lines in the room.

Attention is now called to an error of another character. On one slate dots are found to be on a level, but too near each other; the teacher calls upon the class to look at their copy, and then say what is wrong. She then examines the slates, letting as many as the time will allow criticise their own work in this particular. This will make them familiar with the expressions "near together" and "far apart." The teacher introduces the term *distance*, illustrating and explaining its use.

When this has been done, whether in one lesson or

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two, the children are permitted to practise by themselves, with the card for a copy, using, however, only two dots in each example. In no case should the teacher allow the class to measure distance, except by the eye, nor to make use of a ruler for direction of lines.

Ex. 2. Aim: A series of dots *on a level* and at *equal distances* from each other.

The teacher commences by reviewing the work of the preceding day, and examines the slates, to mark and encourage if there has been improvement. In the figure of a slate upon the board she adds a third dot, on a level with the two dots first placed, the interval between the dots being always the same. Questioning will develop these ideas from the children. If the class is very young, the teacher may be satisfied for a while with the expression "just as far apart;" ultimately they should become accustomed to the phrase *at equal distances*, or *equally distant*. This practice, with three, four, five, or more dots, may be used at the discretion of the teacher, care being taken, as every dot is added, that it shall be according to these two ideas of place and distance — *on a level, and equally distant* from the one last placed.

Ex. 3. Further exercise in distance; ideas of *between* and *middle* developed.

The teacher directs the children to place two dots on a level, but, this time, a little farther apart than before

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(this will be sufficiently explicit). This done, on the board and on their slates she places a dot between the two on the board, and asks where it is; then varies its position, keeping the level, and repeats the question; finally, puts the dots, with evident care, exactly half way between the two first placed.

In answer to the same question, they say, "It is now in the middle;" and, if questioned what they mean by the middle, or where the middle is, they say, "Half way between." Two dots are placed upon the board, and a child is called to put a third in the middle between them; objects are placed apart in the room, and a child is called upon to stand between them, and exactly in the middle. The class express opinions upon the correctness of the two, and the teacher measures to decide it, letting them make the statement in another form: "Both of the two dots first placed (or the two ends) are at the same distance from the middle."

Ex. 4. Object aimed at: To exercise upon the terms *right* and *left*.

The class is first directed to make three dots on a level line: with few exceptions, the children will put each new one at the right of the one last placed. If they are not familiar with the use of the word in other connections, the teacher may simply give the word *right* to describe this direction, and, when this is received, its opposite is called *left*. As an exercise, they find the middle dot, the one at the left and the one at the right;

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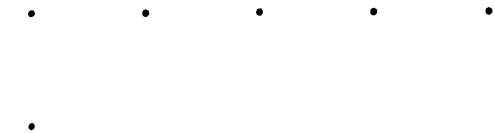
then add one at the left, and one at the right, both upon their own slates and on the board. They also repeat the drawing, placing a dot for the middle, and adding dots at the right and left, taking care about distance and position.

Five dots may be placed at dictation, thus: Two dots placed on a level, and farther apart than on the card; a dot between and exactly in the middle; a dot between the middle dot and the one at the right; also between the middle dot and the one at its left. Observe that all distances between the dots should be equal.

Ex. 5. Aim: To exercise upon the terms *below* and *above* in drawing.

The children commence by making *a line of dots*, as in preceding lessons, and are led to notice their order from left to right, as first, second, third, &c.

Then the teacher adds to her work upon the board a dot below the *first* dot in the line, keeping the interval between the dots the same as in the line first drawn, thus: —



She questions the class, to get from them its position and distance. If they do not notice the equality of distance, she erases the dot below, and places it lower than before, and asks where it is; then replaces it and asks again.

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They see that the "dot below" is as far from the first dot, as the second is from the first, the third from the second, the fourth from the third. A dot is then placed under the *second* in the first line, and its relative position stated as before; then a dot under the *third* dot in the first line, and so on till the lines are of equal length.

A third line of dots is then added *above* those already placed, with similar directions, and, if the teacher pleases, a fourth and fifth.

The amount of questioning needful to establish these points will depend upon the age and capacity of the class of children; as will also the counting, numbering in order, and various other exercises, which play an important part in the detailed method of the teacher.

Ex. 6. To introduce the *upright* or vertical line.

The terms *above* and *below* having become familiar to the children, they can readily make, from dictation, a single line of dots by commencing with a single dot, and adding one above, then one below. They count them, and find there are three. Numbering them from the lowest, as first, second, third, the teacher asks where to place a *fourth*. They tell her "above the third;" and, in respect to distance, "at the same distance;" a fifth may be added, and more, if the teacher desires.

In criticism of the work, the teacher will find that, as before, she had need to take care that the dots

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were neither *higher* nor *lower*, but on a level, so now she must impress upon the children's minds that a dot placed a little to the right, instead of directly above or below, or a little to the left, will *spoil* the upright line. She has need to illustrate this by holding objects so that they lean, letting children stand first erect, then lean to right or left, &c. She gives the term "upright" to indicate this direction, and names the line of dots they have made *an upright line.*

SUMMARY OF LESSON I. CARD I.

When do we say that dots are on a level?

When one is neither higher nor lower than the other.

Tell me something in the room that is level, and why you say it is.

When I am careful to place the third dot just as far from the second as the second is from the first, what can you tell me about them?

They are at the same distance apart.

What other word tells that the distance between a great many dots is the same?

Equal.

Find two things in the room that are near each other, then two others that are at equal distances with those.

When dots stand directly above each other, what kind of a line do they make?

An upright line.

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CARD I. LESSON II.

The introduction of the cross [+] is the only distinguishing feature of Lesson II. as it stands upon the card. It is designed, however, as an advance upon Lesson I. The teacher is earnestly advised to accustom the children to draw from her dictation. The *practical* value of this, though very great, as will be seen in subsequent lessons, is not its *chief* value. The *habit of mind* which must result from this exercise, will show itself in intelligent attention in every other study. Let the teacher work slowly and cheerfully, if it is a little hard at first, praising effort on the part of the children, if the measure of success should not be great enough to deserve praise. Until the patterns are perfectly familiar, they should either be studied with the teacher from the cards before drawing, or taken without reference to the cards as a dictation exercise by the teacher, and afterwards compared with the cards for criticism. The children, in the latter case as in the former, should be encouraged to make the criticism themselves. The use of "level" and "upright," as descriptive of the direction of lines, will now in the Manual give plan to the usual terms *horizontal* and *vertical*. The teacher will use her own judgment as to the time when she will substitute them in her teaching. There is undoubtedly an advantage in retaining simple, expressive words until we are sure that the ideas they convey are so impressed

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upon the mind as to warrant the use of unfamiliar terms.

Ex. 1. Object: Accuracy of eye and hand.

Special Points. — Crosses of uniform size in different relative positions.

The teacher attends to the preliminaries indicated in the Introduction, then makes upon the board a cross, and lets the children study it with her. They tell her what it is, of what made, and how the lines compare in length.

By placing two pencils or two sticks across each other, the children are helped to see and say that the lines are of *equal length* (if very young, the children may be allowed a more simple expression), *and cut each other in the middle of each.* The teacher makes several on the board *not* answering fully to these ideas, and the children tell what, in each case, is the fault. Several children try also upon the board. Now they are ready for practice upon their own slates, the upper left-hand corner of which is taken as the place for beginning.

In many cases teachers allow the practice upon slates to *precede* this exercise of helping the mind to the conception of the idea; but the true principle of education is violated. The mind should direct the hand intelligently.

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Ex. 2. Arrangement of crosses. — Dictation.

In the left upper corner of the slate, *make a cross. At its right, and at a little distance, a second; go on till there are five.* See if they are on a level, and at equal distances. *Leave these on the slate, and just below do the same thing again, taking care to have them just right. Find the middle cross. How many are at the right of it? At the left how many?* See how far apart these are. *Over the middle cross put a cross, letting the distance be the same. Below the middle cross in the line, make a cross.* Count the crosses. *How many in a horizontal line? How many in a vertical? How many in all? Why are there not eight?*

Find on the card the same copy, and make a new one on your slates exactly like the copy, letting the rest remain, that I may see how much you improve. [It is possibly needful to say that, in case of young children, the teacher will make these directions more simple, and draw upon the board all the while to show the children what she means by each.]

Various patterns may be made of these crosses. If made by the teacher, they should be drawn upon the board as they are dictated. If the teacher will take the trouble to cut short strips of pasteboard, and sew them together, the young children may have the exercise last dictated in a simpler form, by *placing the crosses* instead of drawing at first; and the children

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will also by the use of them *make* very pretty patterns themselves, which they may afterwards copy.

EXAMPLES OF ARRANGEMENT.

1. Three crosses in horizontal line. Find the first, and place under it, at equal distances apart, two crosses.

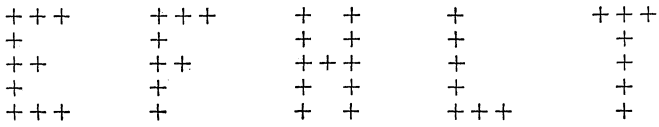
2. The same repeated with two crosses under the third in the horizontal line.

3. The last repeated with a cross placed between the two lowest crosses in the figure.

4. Five in a vertical line, with one at the right, and one at the left of the fourth, numbered from the lowest.

5. A cross for the centre, and single crosses at the right and left, above and below.

6. The letters E F H L T made in their simplest forms, with cross, thus: —



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Ex. 3. Study upon the arrangement of crosses forming the *left* side of Lesson II. on the card, to develop the idea of a line.

"Find Lesson II. on the card, and count the crosses." "Look now only at the pattern on the left side." "Cover the others for a moment with your book, that I may be sure you know which I mean." "Yes, that is right." "Now count again the crosses that are left." "There are ten."

Who sees a horizontal line of crosses? How many such lines are there? In the upper line, how many crosses do you see? Two. *And the next has how many?* Three. *Can you make a line with one?* Let children try to stand in line; they can easily be shown that it must be with something or some one. Show them that one of these makes the beginning, the other the end. Let a child walk in such a line made by two things, and let the class see that the line is there, whether or not anything is in it. Place two boys apart, and let as many as there is room for stand between them, in the line made by the two; then let the children take their seats, one by one, and the class tell, as each leaves the line, whether *the line* remains. When *the two* only are left, send one to his seat, and ask if there is a line of boys now. Talk of a line of desks, chairs, houses, &c.

Return to the card with lines of crosses; let the children find the three horizontal lines of crosses, and tell how many in each; then add them, saying, *Two and three*

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are five, and five are ten. Let the children practice in drawing, by drawing the first line of crosses. Ask what they can say of the distance between them. "*They are far apart.*" What the two crosses are to the line? "*The beginning and end.*" They put a cross in the middle of the line between them, and have the second line of the copy. To make the third from it, they must add two more. Let one of the class tell, if he can, how it can be done. If no one can, let a child come to the board, and place in the teacher's drawing *one* of the two, and the rest tell where it is: "*Between the cross in the middle and that at the right hand;*" and another place the fourth, which is "*Between the middle and left hand.*" Question upon what they mean by a *line*, but give no definition at this time.

CARD II. LESSON III.

Card II. continues the exercises with crosses, introducing combinations of crosses and dots. No attempt is made to exhaust the pleasing varieties; the teacher may, with an additional number, make even prettier patterns. The author recommends that, as in other elementary studies, the work should be pursued with thoroughness, and, as a rule, the exercises upon one *idea* continued till there is a proficiency in drawing, pleasing to the child and others who observe his work, but that they should *not* be kept upon one *pattern* until they are weary of it. The love of change in children

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should be respected by those who appoint their tasks. Review exercises may be given at any time in the course, as the cards are constantly at hand.

LESSON III.

The children are directed to take from the case the second card (they should be kept in the case in the order of their numbers), and find Lesson III. upon it. They count the patterns, and find four; for convenience, these are named according to their position: the first as the upper left-hand pattern; the second as the lower left; the third and fourth, respectively, as the upper and lower right.

Ex. 1. The pattern at the upper left-hand corner.

This may be studied by the children a few minutes, after which the teacher calls upon a child to tell how many crosses there are, and how they are placed? How many in the longest line, and what kind of a line they call it? What name they give to the other lines? How many in each of those? How many in all? Which crosses come in both the horizontal and vertical lines? What must they be careful to remember in the drawing upon their own slates? In this connection the teacher speaks of *neatness* in addition to points already mentioned. The children are then left to draw the pattern from the copy.

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Ex. 2. This pattern (the lower left) is so simple that no instruction is needed other than that indicated for Example 1.

Ex. 3. .The upper right-hand pattern.

Study: Find the next pattern. *What did we name it?* Look at it carefully, and tell me if you see anything in it we have had before. "Crosses." Yes, but *how many?* Nine. "Who can find lines of crosses? A. may tell about the line he has found." "There are five crosses in it, and it is a level line." *What other name for a level line?* Horizontal.

All may find the horizontal line and count the crosses. B. may tell the class if he can find another horizontal line. He cannot. What kind of a line can any one find? An upright or vertical line? Who can find a vertical line? Yes, there are two. Count the crosses in these lines, and tell me about them. There are three in each. Now all may look and see if there is not another horizontal line of crosses. C. finds it. He may tell the class where it is. Over the line we first found. Some one has found another. D. may tell where it is. Now we will count the lines. All may point to the long, horizontal line; now to the upper short one, and now to the lower. There are three; and besides these we have two other lines. What do we call them? Upright or vertical.

Now E. wants to tell what else is in the pattern. Yes, there are dots. How many? *Who sees a line*

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of dots? How many lines? Lines of what kind? Horizontal. See if there are upright lines. How many points does it take to make a line? Then there are four upright lines or two horizontal lines. Now we will draw the figure. What shall be made first? Let each point be dictated by some child as the class draws.

Ex. 4. Lower right-hand pattern.

Dictation: Make a cross. At the right of it, and very near, put a point or dot, exactly on a level. We will call this the *first* dot. Do the same at the left. Now, directly above this point at the right, place another cross, as I do upon the board, and above it a dot. See where I put another cross; *you* may put one *below* the first dot we made, too. Look now and see what kind of a line these two, above and below, make. Is *your* line exactly upright? Make it so, then. Now see where I put another cross. Yes, it is at the right of the first dot. And now we have how many dots? I will put one below this lower cross, and one at the right of the right cross. Now there are five dots and four crosses. You may make them on your own slates. What shall we call this pattern? Yes, it is a cross made of crosses and dots. Look at the patterns on Lesson III. and see if you find anything like it. To-morrow we will draw the whole pattern, and you shall tell me how to do it, and where to place each cross and dot.

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LESSON IV.

Point: To introduce the idea of symmetry and exercise upon upright, level, and leaning lines, with their appropriate names, horizontal, vertical, and oblique.

Ex. 1. The left-hand pattern.

The children are led to notice that the crosses are a little larger, are in an upright line, have dots between them, and at the right and left of the two which stand at the ends of the line. They draw them, commencing in the *middle* at first, as in this way the line is less likely to lean, afterwards commencing at the top or base, as the teacher may desire. In drawing, the usual plan should be to commence at the top, drawing downwards to protect the drawing from being rubbed by the hand.

Ex. 2. A horizontal line of crosses drawn in the same way, with the dots.

Ex. 3. Lead the children to imagine these two lines placed across each other, as in the second figure. Illustrate by pieces of wood or paper. Let the children find the cross in each line which would fall upon, or under another, if laid above to make the cross. The pattern may now be copied from the card, criticised by the teacher, and drawn again till well done.

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Ex. 4. Several patterns may now be drawn on the board by the teacher, or the pasteboard crosses may be arranged upon the table, with one arm of the cross longer than the other; or half of some pattern may be combined with a part of some other, and the children led to notice the want of harmony and beauty in the combination. The word *symmetry* may not be used if the children are young (indeed, it should not be with any class till the thought of symmetry is in their minds), but taste can be cultivated at a very early age, and the children will criticise each other's work more easily if attention is called to this point, and they are taught to express themselves upon it.

Ex. 5. The third figure differs but little from the second. The class may be called upon to reproduce the second *from memory;* then look at the copy, and see in what the next pattern differs. They find four lines, terminated with four dots, and have no word for them; they are not level, nor are they upright. The teacher holds a stick, or pointer, to represent them, and leads the children to say, "They lean." She places them so as to have them lean forward, backward, to the right, and to the left — lines on the board are seen to lean much or little, but always to the right or left. Young children may take the name *leaning* lines; with older ones the term *oblique* is not difficult.

In giving these unfamiliar words, horizontal, vertical, and oblique, care should be taken, for a while, that

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both terms are in the mind; that is, the simple and the difficult, level and horizontal, upright and vertical, leaning and oblique; and the words should be kept printed upon the board in sight of the whole class, and, if the class need it, divided into syllables. They should spell the words from the board, either by the letters or by the sound, occasionally, till they cease to be strange to them.

In drawing the oblique lines, symmetry requires that they should be of equal length, and at equal distances from the central cross: or the exact or absolute length is of importance only when they are making a copy of the figure on the card.

For inclination of lines, the simplest idea is, that they divide the opening into halves; this the teacher can illustrate with corners of books, tables, or the floor, or right angles in anything.

CARD III.

Lines of greater length are now introduced, and the pupils exercised in drawing them. The idea of a line is also extended in its application. As a *string* held in any position describes a *line*, as *words* on a printed page, being in regular succession, constitute a *line*, so the chalk or pencil *mark* we make from one place to another on the board or slate is also called a *line;* and, instead of saying accurately, each time, "Draw a mark horizontally," we do say to each other, "Draw a hori-

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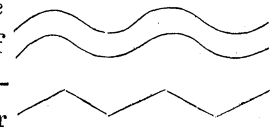
zontal *line;*" and, in general, when we speak of drawing a line, we mean this, and not a succession of dots, crosses, or objects of any kind. This the children may be taught to comprehend.

The kinds of line, properly, are only two, — straight and curved, — all other terms being descriptive either of combinations of these, or of their various directions or attitudes; as, for example, *the wavy line* is a succession of curves, *the broken line* a compound of several straight, or straight and curved lines, and horizontal, vertical, or oblique, tell whether the straight line stands uprightly, lies flat, or inclines. Yet, for want of an easy word for "direction," we use the word *kind*, also, to indicate this latter variety, asking the children, in case of an oblique line, "What *kind* of a line is it?" Teachers may, with propriety, use the term *class* for the two distinct varieties, and *kind* to express these minor differences.



The terms *straight* and *curved* may be given to the children at this time, if they have not already too many things to remember. A string, held loosely, then drawn tightly, or a child walking to a given point in the room, first in a circuitous way, then in the direct way, will develop from the class the term *straight*, and a statement suited to their ages. No formal definition should be required of very young children — older ones can take the form of statement common among grown

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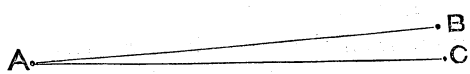
people. For a curved line, a string held at the two ends so as to droop, a piece of steel spring, or any flexible substance, may be used. As these illustrations are given, the children should draw representations of each on the board, giving the term also to the chalk mark used.

Before taking the patterns on the cards, several lessons should be given for practice in drawing lines in the various directions. At the first, these lines, when drawn upon the slate, should be short, not much exceeding an inch in length; afterwards, as the hand can be held steadily, lines of two and three inches may be taken.

In drawing, the teacher should require the pupils first to mark two points for the beginning and end of the line, then observe the distance apart, and the direction, to be sure it answers to their idea, and alter it if it is not correct; when this is done, move the hand slowly, but with one sweep, over the distance, as if drawing, but without touching the point of the pencil to the slate; this, at the beginning, to be repeated several times, then draw the line. If, with all this care, it is found to be faulty, terminating either above or below the point set for the end, *let it remain*, and have another line drawn accurately before the first is erased, thus: —



A B represents the first line, which swerves from its direction, and A C, the correct one, drawn after-

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wards. This will prevent a repetition of the same fault.

The points, or dots, used to mark the beginning and end of lines, must be made very small, so as to disappear when the line is drawn. The length of time for continuing this practice must be left to the judgment of the teacher. It may be continued, as a part of the lesson, to insure carefulness during an entire course in drawing, and no lines of any length should be drawn by the children without the preliminary steps. If it can be sufficiently impressed to become *a habit*, the teacher will be relieved from further care.

ILLUSTRATION OF METHOD OF TEACHING LESSON V.

Children in position. Slates placed. Pencils held properly.

LESSON.

M. may come and hold this string, so that it will make a straight line.

The class may see what *kind* of a straight line it is.

You may make it describe a horizontal line, and the class may draw it on their slates.

Now, if I wished for but *half* this string, who can tell me where to cut it?

How should I find the middle?

A may find the middle, or the place to cut.

What did she *do* to the line to find the middle?

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Yes, she doubled or folded it.

Now I wish to find the middle of this line on the board, but you see I cannot double it.

S., what shall I do?

You may try to find the middle of the line.

You must look sharply.

Think where the middle would be; hold the pencil there a moment, and see if it looks just right.

If not, move it till you find the right place, and make a tiny mark across the line there.

If I were to cut this apple, and give C. and S. each a part, we should say I had *divided* the apple between you.

And if the two parts are of exactly the same size, — I will try to cut them so, — how much will each have?

Yes, a half.

But if they were not of the same size?

They would be *parts*, but not *halves*.

Now it is just so about the line: I can divide it into two parts very easily, but, if I want to divide into *halves*, one part must be just as long as the other.

And since you cannot double the line, as you do the string, you must be very careful to do it with your eye.

You may all try with the line upon your slates.

M. may tell me about halves of anything.

The class may tell together.

Now we have two halves to our line, and I shall want to talk about them, so we will give a name to each.

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Who can give one?

Yes, we will call this one the "right half," and that one the "left half."

Practice upon division of lines will complete the lesson.

Second day. Draw a horizontal line, and cut or divide it into halves.

Now we will use, for the present, only the *right half.*

See what I do upon the board.

M. may tell the class.

Yes, I have found the middle of the right half.

Who knows what a half of a half is?

You may all do the same; then look to see what I do next, and G. may tell.

Yes, I have drawn a line through this point — what kind of a line?

How long?

You may *all* draw through this middle point in the right half *a vertical line* that is "*just as long*" *as the right half.*

What does it make?

Find Card III., and see if you have drawn any part of Lesson V.

Now look at the long horizontal line, and put a dot near it at the left.

It is done.

Now make points for the other horizontal line at the left of that.

How long must it be?

Where must you divide it first?

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Which half will you divide for the cross?

What kind of a line will make the cross?

How long must it be?

Now see if it is exactly like the pattern.

Who sees anything else in the pattern?

The children tell where the dots and short vertical lines are, and they are drawn.

The same figure, in a *vertical* position, may be drawn next, and afterwards the large cross.

LESSON VI.

General Dictation.—Mark the points of a short vertical line. (The length on the card is a good average; some children will incline to make very short lines, and must be corrected.) See if one is directly *above* the other, and, if so, draw the line. Leave a little space below (a very little), and, below this, draw another vertical line of exactly the same length. Observe that it is *exactly* below. If it is, I could fill this space between, and both would make one long line.

Between these two lines, in the middle of the space, make a dot. We will call this dot the *centre*. Of what is it the centre? No, not of the line. We do not speak of the centre of a line, but the *middle*. This dot is the centre of something we are going to make, with several lines. Think now only of this dot that is to be the *centre*, and see what I do on the board. Short horizontal lines, are drawn at the right and left, and, after being described by the children, are drawn by them

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on their slates. The work, first of the teacher, then of the class, is examined, to see if these lie in the same line with each other. The teacher then draws one of the oblique lines in the copy, and questions the class upon its length, and upon its distance from the centre. *It is as long as the short horizontal lines* in the figure, *and as far as they are from the centre.*

Before drawing the other oblique lines, the teacher asks, "If you were on one side of the street, and I were on the other, or if you, Mary, live on one side, and I on the other, do you know what we might say instead of on the *other* side?" *Opposite* is the word. "Do you know what I mean when I say you live opposite me?" Now I have some lines that are on *opposite* sides of this figure, and shall want to make some more, when you have found two that are opposite. Who sees two that are opposite? Two more?

Now look at this oblique line, and find the place opposite to it for another. It is drawn by a child, but inclines the wrong way. The class corrects this mistake, and the teacher draws it, making it too long, and they criticise again, then draw upon their own slates. Two more oblique lines are needed to complete the figure, and, at the suggestions of the teacher, dots are added, and the figure then compared with the copy, and practised upon by the children.

The same is afterwards drawn, in a *horizontal* position, either from the copy or from dictation, and, when both are familiar, they are combined to make the cross.

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CARD IV.

The idea of a square, though by no means new to the children, is probably vague, and very general. It may be developed in their minds, so as to become very explicit, without telling them anything, if the teacher will carefully unravel their ideas, and knit them up again into intelligent form. It has been thought best to bring before them this broken-sided figure (see Lesson VII.) first, rather than the simple square in Lesson XIII., Card VII.

It is more easy for the eye to carry the five short distances in one side of the square, and reproduce them in another side, then in a third and fourth, than to correct the faults in the simple four-sided square they feel so competent to undertake. If teachers will try this, we think they will reach the same conclusion.

Let each separate line be drawn with care, and the square will appear as the result; or, if there should be a failure, it can be traced to its place, and there will be merit in all other parts.

In Lesson VII., the line first drawn is the standard or measure of length for all the others — twelve in number. It does not matter that no two children may have the same length till they copy from the card, when that of the author should be taken. Let each draw, with care, a short vertical line, then leave a space not quite as long, and draw below, a second line like the first;

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then, after leaving a space equal to the first space, draw a third line like the first. The teacher examines the work to see if this succession of lines and spaces is plumb or vertical, letting the children pass judgment upon their own work, before altering it. Find the top of this line, and have them draw from this point a horizontal line to the right, and so on through this side of the figure. The children will get the idea by this time, and those can be found in every class who will supply the dictation by anticipating the completed figure. The dots found in the copy may be added when a correct figure has been drawn. By comparison of side with side, or of the whole figure with something that is rectangular, they find that all the sides are equal. They find the corners, and look for similar ones in the room, in their books, &c., and are told that, because all these latter corners are like the one in a perfect square, they are often called "square corners." Exercise them with cards (rectangular, octagonal, and triangular), letting them select the "square corners." It will help to train the eye, and make them careful in drawing.

They practise on the square drawn in this way till they are quite accurate. The teacher shows that a mistake in one little part, even if all the rest are drawn nicely, will prevent the figure from being a square.

It is often difficult for children to make two lines meet in a point nicely; they are quite apt either to leave an opening, or to let the lines overlap. Practice in drawing, from a point first located, will do very much

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to lessen the difficulty, and care, on the part of the teacher, will soon carry the children over it. We do not need to say that there must be a large measure of patience with their weak fingers.

Imagination may be exercised to aid them here, to smooth the difficult way a little; they may call the figure a park, or common, with a fence about it, and the spaces, entrances to it; or the floor of a house, with doors and windows.

The three other figures on Card IV. are fancy squares based upon this simple one.

In the second figure four lines are added, with dots at each end.

In the third (Lesson VIII.), the four crosses, which form the corners, may be first drawn, and the distance between them divided to find the place for the middle lines.

The fourth, in Card IV. (or second, in Lesson VIII.), differs only in proportions. It may be drawn easily from the copy, the teacher calling or dictating the parts, thus: —

How many crosses do you find?

Look at the lower left-hand corner, and draw that cross first; when you have finished, let your elbow rest upon the desk, and hold the pencil for me to see, till I give the next one.

Notice, now, the cross above this one.

How are they unlike?

Draw it, with its dots, and then wait as before.

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Draw now the one on the upper left.

This makes one side of the cross.

The middle cross at the top, then the upper right, then the middle and lower right are drawn; after which the middle cross in the base only remains to be drawn.

If the children weary of the practice before they are ready to go on, add some slight variation; as, for example, in this figure, let the four small crosses in the corners be erased, and let the children pronounce upon the comparative beauty of the two patterns. If still more variety is needed than such exercises give, let the class review (they always like to do a thing they can do well), but by no means go on till there is some measure of success, as each pattern presents some difficulty, the mastery of which is needful to prepare the way for the succeeding ones.

CARD V.

The patterns on Card V. are always pleasing to children, and their success with them is greater than would be expected. In Lesson IX. the figures are to be drawn in the order in which they succeed each other on the card. The long line is first drawn, then divided into halves (see dictation for Lesson V., Card III.), and crossed. The oblique lines are new, and must be first drawn on the board by the teacher. Care must be exercised to have them pass through the centre, so as to make the crossing a mere point; also, to have them of

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equal length. In a small cross this will not be difficult, if the children are suitably impressed with the idea. They will call this new figure "a star." The teacher will do well to require practice upon a *single star* till every child can draw it nicely.

In the second figure, the *lower* half of the line is also divided, and its lower half crossed.

The third exercise is a horizontal line, divided and terminated with stars in the same way.

In the third pattern on the card, two oblique lines, of the same length as the other star lines of the figure, are drawn through the centre of the whole figure, making a central star, with four prolonged rays and four stars around it at their ends. After this figure is finished by the children, the teacher may call attention to her pattern on the board, also finished, and find, in two stars, oblique lines that, if prolonged, would make one line, joining the two stars. This will help them to see if their own oblique lines have the right inclination. Teachers will see that these lines divide the angle equally; but children are hardly ready, at this stage, for the idea of angles.

In the fourth figure, where *eight* stars surround a central one, a great variety of pretty patterns can be made. The whole beauty of the drawing depends upon the correct proportions of the lines; it may be found necessary to let the class practise for some time upon the four long lines, without the stars. — See Plate I. *a*.

A pair of dividers will assist the teacher very much

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in measuring for the children, when their eyes fail to detect their faults.

The same exercise may be taken with dots; and, when they are placed correctly, they may be connected, and the figure of an octagon drawn. See Plate I., *b* and *c*.

Another variety may be made upon the same idea by commencing at the centre, and drawing from it lines of equal length. More than the eight lines of the pattern may be taken. (Plate I. *d*.)

Pretty patterns are also made, and children exercised to advantage, by first drawing the two patterns, as in the copy, then erasing such parts of lines as are not in the stars. See Plate I., *e* and *f*.

In the latter exercise, the pattern should be drawn on a larger scale. Patterns *g* and *h*, on Plate I., may be given to those of the class who show special skill, while others are practising upon those on the card.

LESSON X.

Report of a lesson given to a class of children six years of age.

Preliminary exercises as indicated.

T. I have a card, with a very pretty pattern. Let us see if I can tell you about it, so that you can draw it upon your slates. How many know what I mean when I say, "A horizontal line?" Do you know what I mean by a short horizontal line? Show me with your

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pencils. Emily, yours is *too* short. Charlie is right. Yours is too short; and yours too long. All may look at mine. You may all draw *a short horizontal line.* Now I will draw another line; see if you can tell me what kind of a line it is.

A vertical.

T. The class may tell.

A vertical line.

T. Who can tell me *where* I drew the vertical line? Elva may.

E. Across the horizontal.

T. All the class may tell. But, Mary, across the horizontal, *where?*

M. In the middle.

T. How many think I drew the vertical line across the horizontal in the *middle?*

Yes, in the middle of both lines.

T. You may try to do it. Now, what have you?

A cross.

T. Look carefully and see what else I draw. The class may tell together.

An oblique line.

T. Why do we call it an "oblique line?"

Because it leans.

T. Yes; now who can tell *which way* it leans, and make one leaning the same way? You may all try. See now how long it is, and how near the centre it is, on your own slate. Now, on the other side of the figure, I want to put another oblique line *just as near the*

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centre, and *just as long*. Who can find the place for it? Josie may.

J. When anything is on the other side, we sometimes say it is *opposite*.

T. Yes, that is right; all may say it.

The class may see if J. has found the right place for the opposite oblique line. Who remembers how long it is to be? And who can tell how far from the centre? Now you may draw it. Who sees a place for two more lines? Emily may tell what kind of lines.

E. Oblique.

T. Mary may draw *one* in my figure, and Eddie *the other*. Now *all* may draw them on their slates. Be sure they are all at the same distance from the centre, and all of the same length. I can see one that touches the centre. Now put down the pencils, and I will show you this card, and see if yours are right.*

CARD VI.

An almost universal accompaniment to the acquisition of the alphabet is the printing of the small let-

* Some were too small. In some the oblique lines turned the wrong way; but, for the most part, they were good. I told them to leave them, and try to make a second one better, and then all were good. The class had had no lessons for several months; consequently I think there can be no difficulty in the use of these lessons with very young children. The combination of these into patterns, like those on the card, presents no new idea, and may be taken immediately after this exercise.

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ters, more than half of which contain entire or broken circles. The small circles in Card VI. meet this point, by furnishing a curve which may be made to agree with that of the most of the letters.

The youngest children will be quite at home with the "rings." A little talk may well precede the drawing — the teacher using for the purpose a finger-ring. They see it roll, and describe it as "round;" then find examples of other things *round like the ring;* as, grace-hoops, rolling-hoops, &c. The teacher draws a line to represent a ring, calling upon them to find its beginning and end. They call the figure "a ring," and the line "a curved line" — the teacher repeating the instruction upon straight and curved lines in Card III.

In drawing these rings, to join the two ends nicely, to make them with one movement of the hand, and to make them round, are the first efforts; afterwards, in making the patterns on the Card, uniformity of size and regularity in distances must be considered.

CARD VII.

LESSON XIII. — The object of this card is to give practice in lines, to introduce the idea of parallel lines (but not to give the word), to exercise the children upon the square, and to develop the idea of *an inch*, as a standard of measure, and train the eye to estimate short distances and lengths. Everywhere the teacher is earnestly requested to do all she can to cultivate language.

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At this age a larger vocabulary of intelligent words is the great want of the child. He sees, but loses the impression of what he sees, for want of words with which to retain and recall it. Each new word should be given with clearness, then recalled by questions often enough to make it familiar. An occasional exercise in studying the card, and telling what they see, will afford opportunity for this.

In the first figure, the children can tell, in answer to the teacher's question, that it has two lines — both straight (one vertical, the other horizontal). These lines are of equal length, and cross each other in the middle of each. Four corners are made by the crossing; we call them square corners, because they are like those of the square.

In the second figure, the same appears, with eight lines added. The children must learn to tell where they are. They first tell how many are vertical, how many horizontal, then that each horizontal line meets a vertical, and makes a square corner. The place where they meet is at one end of each. There are four such corners.

In the original figure, they find four open corners, about a point, and these are inside them. At first thought, they say these are smaller; then they are shown that the *corner* in one is as large as in another, and by reference to corners of books, slates, the room,

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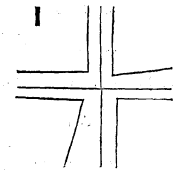
they find, by measuring, that all square corners are alike, and must, of necessity, be.

The difference, then, must be in the length of the lines; they find those that are shorter, and compare them in length.

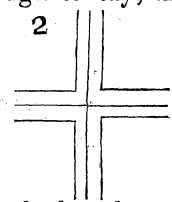
Perhaps, in trying to draw them, they will place them irregularly, and feel that it is somehow wrong, without knowing where or how; thus: —

1



Attention must now be called to the relative position of the lines. At first, it may be enough to say, the line must be vertical or horizontal, as the case may be; but then another fault may appear, in which the whole beauty of the figure is lost, while the lines are very nicely done, thus: —

2



The teacher draws such a copy upon the board, saying, "I see on your slates figures like this: who can tell me what is wrong?"

If they cannot tell, she helps, but does not tell them, by letting them find the two that lie nearest together, then the two that are farthest apart.

Then, using the first representation of faulty work, she requires them to find the place where one of the lines is *nearest* to the one by its side; then when it is *farthest* away. Taking the card, she tells them to find how it is on the card, asking the same questions, and so gets them to say, in their language, that, "In the copy, the lines are all at the same distance from each

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other, and the lines that are side by side are everywhere the same distance from each other.' This word *distance* is always hard for them, owing, perhaps, to its being abstract. It is a long time after they understand it, as used by others, before they incline to use it themselves. The teacher should talk of the distance to their homes, to the post-office, or mail-box, to church, or any marked point in the vicinity.

In drawing, she may show them the need of first making the points, if they do not all do so, as they can so easily do that, and thus avoid the difficulty. The previous practice in measuring distance from a point in the centre, will make it comparatively easy for them to place these four points for the four angles in the right position. Having placed one, the others are in a line with it; and the early exercise with dots will help them to notice this.

The square is next drawn by the children, who have already learned about the lines and corners. They are impressed with the idea that it must be done with great care and accuracy, first fixing points; yet, notwithstanding the great amount of practice they have had in estimating length and direction, it is to be feared that the dividers will be in constant requisition to show the children their faults.

A standard of measure.

The teacher calls the attention of the children to the

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fact they have been told to draw lines long and short (as long as some other line, or as long as a line in the copy in the card), and asks if they know *how long* any of the lines really are. They do not; and she asks how people find out how long anything is. "They measure," some one says. A little questioning will bring out that a yard or tape measure is used. The teacher tells them that, every time they try to make a line as long as some other line, they use this "other line" for a copy or measure, but that there is a little measure for lines that almost everybody uses. She draws it on the board, or shows them in the copy, lets them spell the word *inch*, and pronounce it several times, then try to draw lines, measure distances, cut pieces from a string or strip of paper, each *an inch long*.

It may be that the children, having seen the measures on the cards, will know something of them before the time of the lesson; but, however familiar they may be with the name, they will need practice upon the length, and a very instructive lesson may be given under these heads: What we should do without standards of measure; what the standards are, and the use made of them.

After one inch, let the class try to get an idea of two inches, first as one and one, each measured by itself, then of two inches at once. For practice, let books be measured off by inches, dots placed one, two, or three inches apart (the two hands held apart), long lines

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measured by letting one child measure one, a second another, and so on, the teacher seeing how much they lose or gain in the aggregate, then finding each child's part, and criticising it.

The result of this exercise will favorably affect subsequent attempts to copy lines in pictures, or in nature. If the class is old enough, the "foot measure" may also be given, and the class exercised in telling what things are measured by inches, what things by feet.

CARD VII.

LESSON XIV. — The exercises in this lesson are of most value if taken first as dictation lessons from the teacher. It is better that the card should be out of sight at the time, that the teacher may have the undivided attention of her class. The plan of these lessons will be indicated, not fully developed, as it will be easy for the teacher to fill out the details. Many other patterns will suggest themselves to the teacher as she gives those given here.

1. Draw a square, and divide the top and base first into halves, then fourths; then number these points — first, second, and third at the top, and the same at the base, and draw from the first at the top to the first in the base, &c., making three vertical lines across the figure.

2. Divide the square horizontally in the same way into four parts.

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3. Divide it in both ways, making the sixteen squares.

4. Divide the square first into four, and each of those four into four, making the sixteen again.

5. Let the children find the *lower left-hand corner* of the square (after they have divided it into the sixteen equal squares), then the *upper right-hand corner*, and think how a line would look drawn between these two points. In the pattern on the board, the teacher draws such a line, the children find the three points in the small squares which it passes through, and the name *diagonal* is given them. In their own attempt at a diagonal, they have only to draw short lines between these points.

6. When the preceding exercise has been taken, lines may be dictated across the small squares (a part or all), making very pretty figures. See Plate II.

7. The diagonals may be drawn in the square by first dividing it into four squares.

8. Diagonals drawn in a simple square; the children told that, if drawn correctly, they will cross in the centre.

9. For older children than those for whom these lessons are primarily intended, very many exercises are possible at this step. Some of them may be sufficiently simple for use among quite young children. The Plates give a few such varieties, dictation for which the teacher can easily supply, from the following explanation: —

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Explanation of Plates.

Plate I.

See instruction for Card V.

Plate II.

Make a square, and divide it into the sixteen small squares, with dotted lines.

Figs. A, C, and D embrace diagonals in a part or all of these small squares.

Figs. B and F are made by marking over some of the dotted lines.

Figs. E and H are combinations of diagonals and heavy lines in the dotted square.

G has oblique lines added; dictate one of these rhombs, and let the class place the others according to their own taste.

Note. — When once these sixteen squares have been named, first by rows, as first, or upper, second, third, and fourth, or lower, and then in the rows by numbers, as 1st, 2d, 3d, or 4th, there will be little difficulty in the dictation.

Plate III.

Fig. A. — Diagonals drawn in the large square, with dotted lines; middle points found, and small squares drawn through them.

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Fig. B. — Diagonals.

Fig. C. — Mark equal distances in the diagonals from the corners, and draw lines parallel to the original square.

Fig. D. — Draw as before, then cut off the corners; put some small figure within these, as in a frame.

Fig. E. — Make a smaller square within the large, touching it at the corners. Divide each side of this latter square into three parts, and erase the middle part; then draw lines from the corners of the large square to these points.

Fig. F. — Divide the inside square into four parts, and erase two; then draw from these points to the centre.

Figs. G and H. — Divide the sides of the square into four parts; draw from the first point at the top to the third at the base, from the third at the top to the first at the base, &c. Finish by making a square corner or right angle *inside* for Fig. G, and *outside* for Fig. H, with vertical and horizontal lines.

Plate IV.

Fig. A. — Make an oblique cross. At the end of each arm, put a right angle made with a vertical and a horizontal line, and connect these angles with four right angles, drawn with oblique lines.

Note. — Let this pattern be taken after the lesson on right angles.

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Fig. B. — Diagonals and heavy lines.

Fig. C. — Diagonals.

Fig. D. — Sides of small squares divided, and triangles drawn.

Fig. E. — Squares and triangles placed in small squares.

Fig. F. — Make the heavy square inside the large one; draw the diagonals in the corner squares; then lines parallel and equal across the corners of the inside square, and complete the figure by drawing the eight short lines.

Fig. G. — To draw Fig. G, make a smaller square cornerwise in the large one, divide the sides of this latter square into three parts, and erase the middle part; then draw the right angles as in the pattern; this gives the inside line of the figure. The oblique lines of the outside part should be drawn first, then the lines of the square that come within the boundary are to be marked over, and the corners erased.

Fig. H. — Take one part of the figure, and make the dotted cross-line half as long as the first line; then connect these outside points, and join four such figures at a centre.

Note. — In drawing these figures, the teacher should always draw with the class, or allow them to see the pattern on the board or in the book. They are only intended for the older children.

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CARDS VIII. & IX.

The patterns in the remaining cards of this series give practice in drawing lines in different positions, and of various lengths. Those in Lesson XVI., XVII., and XVIII. present sections of houses. Lesson XV. is introduced to develop ideas of form necessary to an intelligent comprehension of the relation of lines in such drawing as that of houses. If the study is too difficult for any class using the cards, one idea may be taken at a time in connection with practice upon straight lines. If the teacher draws the ideas from her class, she will know when she is going too fast for them, and can avoid carrying them beyond their depth.

Since a drawing is a representation, and not a thing in itself, the study should be centred, primarily, in the thing represented. Even when the drawing is a copy of another drawing, as is the case in these houses, this is necessary. The children may, it is true, combine horizontal, vertical, and oblique lines, at the direction of their teacher, or in imitation of a copy, but they only execute the idea of another, when it is possible for them to have one of their own. To draw a house themselves, they must first *think* of a house. To enable them to do this, the teacher has only to take the lead in a familiar conversation or object lesson upon a house.

It is manifestly impossible to predict what a conver-

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sation will be, — even when one designs to take the lead; still less confidently can this be undertaken for teachers and children at large, without putting restraint upon the freedom which should characterize such lessons. But, on the other hand, *any* talk upon a house will not do. If the lesson is to be of value, it must have a definite point, the development of which is subject to calculable laws of thought.

The following lesson is given as an example of what one teacher might do, to be used by others to the extent in which they can make it subservient to their style of teaching, and the character of their pupils.

INTRODUCTORY OBJECT LESSON UPON A HOUSE.

Starting with the idea of *a home*, the teacher, wholly by means of questions, brings out from the children the following points, in simple statements of their own making: —

1. When school is done, we go to our homes; others besides ourselves have homes — the birds, the bees, the mice, and the wild animals in the woods. The barn is the home of the horse, the sheep, the cow, and all the useful animals upon the farm. We call the home of the bird a nest, that of a bee a hive, and *our* home a house.

2. We need a house to protect us from the cold, the rain, and the snow, and also from the heat, and dust, and bright sunlight.

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3. Houses are very unlike — some very costly and beautiful, some very rough. Some are high and large, with many rooms; others have but two or three rooms. Some are made for one family, some for two or three.

4. Nearly all houses are made either of wood, brick, or stone; but other materials are used, — such as glass for windows, slates for the roof, lead for pipes, &c.

5. And there are some parts that all houses have. Let each child mention some part of the house at home, other children telling, in each case, if theirs have the same part, and the teacher writing the names upon the board. These parts are a roof, walls, doors, windows, steps, chimneys, floors, rooms, closets, halls, stairs, furniture, &c. If the children give particular names where general ones are better, the teacher can easily suggest *room* as a better term for parlor, bedroom, and kitchen; *furniture* for chair, table, sofa, &c., for brevity's sake.

6. But we cannot see all the parts from the outside. The teacher will erase from the board the names of such parts as belong to the inside of a house.

And we cannot see all the parts of the outside *at once*. When we stand in front, we cannot see the back; when we are at one side, the other is hidden. If we wish to see all of the *roof*, we must be above the house. Standing upon the ground, at a little distance from the house, we can often see two sides and a part of the roof, with the chimneys, doors, and several of the windows. Let pictures of houses be examined,

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the children telling what parts they see, and what are hidden.

7. *Application of the lesson to drawing.*

Talk to the children about drawing houses; let them tell that the drawing would be composed of lines (mostly of straight lines, of the various kinds); then either examine a house, and tell what kind of lines for each part, as they name it, or examine the patterns on the card, and tell the *parts of a real house corresponding to each line.*

The proportions of the house must next be considered, and the lines drawn, one by one (the teacher drawing at the same time upon the board), as they are numbered in the copy upon the card. Afterwards the class may reproduce the lessons by themselves, with the cards for patterns.

The foregoing lesson may be subdivided to accommodate itself to the opportunities of the school.

The child has frequent need to understand and use such words as *angle*, *triangle*, *parallel*, and a few others, the full comprehension of whose meaning is beyond his present power. It is necessary to him to attach some idea to them, and it must be the care of the teacher to make that idea, so far as it goes, a true one. The condensed, abstract statements, commonly given

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as definitions, mean nothing, and often do injury by leading the child to suppose he knows what he does not; nor can we dispense with a form of statement, as some suppose. The child who is taught to combine two lines, and call the result an angle, may never mistake one; but it cannot be expected that he will come to the knowledge that it is not the two lines, but their *opening* or divergence, which constitutes the angle.

The medium to be sought is, unquestionably, an idea, true to the child's present conception, and, at the same time, a part of the whole truth afterwards to be reached. The expression of the idea should be the best the child can adopt, but not one subject to an effort of memory.

Parallel lines must be illustrated by every familiar example within the child's reach. The order of these may be classified — first, *things placed so as to represent them*, as lines of pebbles, desks in rows, railroad tracks, pickets of a fence, rounds of a ladder, &c. The children are led to see, *by many measurements*, that the distance apart is the same *everywhere*, and are told that, because this is so, they are said to be *parallel*. Second, *parts of the same object*, as the opposite edges or surfaces of a book, a door, a table, &c.; then *by lines drawn*.

By reference to converging lines, which the teacher

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draws upon the board, and requires the children to prolong until they meet, they discover that *parallel lines would never meet*, however extended.

In getting other examples from the children, the teacher should ask, in each case, *why they say they are parallel*, and avoid any single form of words which the children can catch from each other, as an answer.

By holding objects, having parallel edges, in various positions, and letting a child trace with his finger those that have such relation to each other, the teacher can show the class that such lines may be horizontal, vertical or oblique in direction. In drawing them from the cards, variety may be given by directing the children in one case to divide the distance apart, in another to double it, to increase the number or length of the lines, or to combine the sets of vertical and horizontal so as to make figures.

The idea of angles and their comparative sizes must be illustrated both by *surfaces*, as books or doors open little or much, and by *lines* in objects that can be opened, as knives, scissors, &c., before the lines upon the board to represent an angle are used.

For the purposes of drawing, the children must become accurate in estimating the comparative sizes of angles, must learn that the length of lines makes no

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difference in the size of the opening or angle. With young children the term *opening* may be used instead of *angle*. The words *acute* and *obtuse* are of little value at present. If the children know the right angle as the measure of a square corner, all lesser openings as small angles, and all greater ones as large angles, it will be sufficient for present purposes. They may also be led to notice that the meeting of a horizontal and vertical line always makes a right angle. Practice upon these ideas is given in Plate IV.

Only three of the regular polygons are represented in Lesson XVI. Other forms of the triangle may be drawn on the board by the teacher, and copied by the class; the rhomb may be drawn from the rhomboid, by making the sides equal, and a trapezoid, or boat-shaped figure, by reversing the direction of the oblique lines.

The youngest children may take these, without their individual names, calling them three and four-sided figures; with older ones, a pleasant and very profitable exercise may be given, by taking one at a time, and finding all that can be said of it.

The following lesson upon the rhomboid (Fig. 7) will serve as an illustration of method: —

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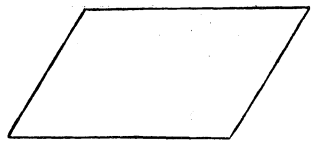
THE RHOMBOID.



Look, children, at what I have put upon the board; — how many lines do you see?

Four.

All may say, "A figure having four sides."

M. may point to them all.

Who can tell me something about one of the sides?

One is *horizontal*.

Who sees another horizontal line?

Look at both these horizontal lines, and tell me something about them.

They are *parallel*.

Can any one find other parallel lines besides these?

S. may point to them.

Are they parallel horizontal lines?

What then?

Parallel *oblique* lines.

Now tell me what we have learned. How many sides?

What about these two? and these two?

A. may tell what kind of a figure it is in one sentence.

A figure with two parallel lines.

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Yes. A. means right. When we have two of anything that belong together, as shoes or gloves, we say we have *a pair;* now we call these two lines that are parallel a pair of parallel lines — who can find another pair?

How many pairs in all?

Two.

Now A. can tell about the figure.

It has ——— ?

Two pairs of parallel lines or sides.

The class may say it together.

2. Now all may look at the *length* of the sides.

Two are long, and two are short.

Not very long or very short, but *two are longer than the other two.*

What do we call the two together?

A pair.

Then we will say *one pair is longer than the other pair.*

3. What else have we in the figure besides the lines?

Angles.

How many?

Four.

L. may find one of them, and tell the class what kind of an angle it is.

A large angle.

C. may find another. D. another. E. the other.

How many large angles?

Two.

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How many small ones?

Two.

Review. — Now let us see how much we have learned about this figure, then I will tell you its name.

Who can tell about its sides?

It has two pairs of parallel sides.

What about their length?

One pair is longer than the other.

And what kind of angles?

Two large angles and two small ones.

Now listen. *Any figure having two pairs of parallel lines for its sides, one of which is longer than the other, and two large and two small angles, is called a rhomboid.*

The class may pronounce the word after me, and spell it as I put it upon the board.

In the development of the lessons of this series, some points have been introduced which may be too difficult for the children for whom the first of the three series of Bartholomew's Primary Cards is intended. The reason for this lies in the fact, that, at the first introduction, all primary children will need to use the same cards.

Afterwards, in regularly-graded schools, the children will commence the first series at the beginning of their school life, take the second at some time in the second year, and the third in the third or last year; or, if this is found too difficult, the first and second may be used

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in the primary grades, and the third in the intermediate or lower grammar, to be immediately followed by the use of the Drawing-Book Series.

It is too much to expect that all the difficulties have been anticipated and provided for in this necessarily condensed manual. If there are troublesome points, which have escaped our notice, teachers will confer a favor by making them known before the revision of the book and publication of the second series, which will follow the present in a few months.

CARD X.

PRINTING is the work of children during their first year in school. It may be commenced as soon as a child has learned a single letter. The most simple letters would be taken first in teaching, and may be in writing. The card may be used as an auxiliary to teaching the alphabet, the size of the letters being a medium between those of the black-board and the book. The use of the card and board might well precede the use of a book for a while.

Later, when the children are taught to spell words, they may take the card, and find the necessary letters, then print them.

When the forms are familiar, and carefulness of execution is sought, the teacher may lead the class to notice that in the capitals B E F R S and X, what seems

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to be the *upper half*, is a little less than half the whole height. Looking at the card in an inverted position will show that this is so; and in many of the small letters on the card, and in ordinary type, the same difference will be noticed.

CARDS XI. & XII.

WRITING. — The gradual change that methods of instruction have undergone within the past few years, has made the ability to write of practical value much earlier than was formerly considered necessary. Teachers have discovered that much of the time spent by young children in gazing at the words of the spelling-board is not study, and that many times idly repeating the letters of a word may not contribute to good spelling, and have substituted for a part of such work the *written* reproduction of lessons they have helped the class to study.

Oral instruction has demanded skill in writing, as a help to the systematic and thorough reception of lessons; and nearly all subjects of study can avail themselves of it as a valuable auxiliary.

The fact, too, that in our large cities more than half the children do not remain in school long enough for any system of penmanship to be taught scientifically, makes instruction in primary schools as real a necessity as reading and the first principles of number.

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If there were no other alternative than the slow process of the writing-book, when the neatness of the page, the distribution of ink, and the formation of correct habits, call for an outlay of time, and teacherly skill, and supervision entirely disproportionate to the other interests of school life, it would be questionable, perhaps, whether the practical gain would not be overbalanced by this inevitable expense of labor. But there is no reason for encumbering the mastery of the written alphabet with the use of the pen, the pride of a book, and the nervous excitement of so intractable a fluid. If taught upon the slate, as printing has been taught, the written letters may be introduced as soon as the form of the printed ones is familiar, certainly at the beginning of the second year at school.

This allows two years of primary instruction, and will insure a ready hand at eight or nine years of age for the many exercises which call for it. It is not to be understood that style or elegance will be secured, or that writing upon slates is understood to be an end in itself — nothing can supersede the careful practice of the writing-book; but so much as is needful of plainness, correctness, and rapidity, may be secured without special difficulty; for to write, and to read the writing of others, are accomplishments which lie in the direction of childish ambition. The difference in natural ability, though great, is less so than at a later period, and may be greatly reduced. It is important that the teacher

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should know, though she may not teach it to children so young, some approved system of penmanship. The knowledge will be indispensable to teachers who have not had the advantage of early training, and is of great value to those who themselves write a good hand.

In the Appendix, a careful analysis is given, classifying the different elements, and giving definite directions for each letter, by the authors of Payson, Dunton, and Scribner's system of penmanship. Teachers are referred to it for a standard of criticism for their own writing and that of their pupils.

INSTRUCTION.

1. The children are led to see that slope is the first distinguishing characteristic of written letters, by comparing a written copy with the same printed underneath; and, after holding a short lath or stick to indicate it, may take straight lines, of the required slant or slope, for their first lesson. (See Appendix, § 1.)

Teachers should be careful to avoid the too common confusion of the ideas "straight" and "vertical."

In the slate designed to accompany these cards, permanent lines are ruled upon one side as a guide to the measure of the slope; on other slates, the teacher may place such lines. It will be well to precede subsequent lessons with a little practice in the slanting straight line.

2. The last part of the letter *u* may be taken as the second idea.

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Attention is directed to the slope and height, and practice given first to the element singly, then to groups of two, three, or four, taken together.

They find upon Card XI., Lesson XXI., that the first letter is made up of two such parts, and learn its name. In practice, care must be taken that these two are of the same height. The Bartholomew Slates, previously referred to, have on one side lines ruled so as to enclose spaces which regulate the height of these letters; when common slates are used, these may be ruled by the teacher. If no such lines are used, the children must be taught to keep a horizontal line in writing, and to preserve uniformity of height. In such cases, it will be impossible that all the children shall adopt the same height, although this is desirable. In writing for the children upon the board, the teacher should use these spaces, and teach the children to say that the letter fills one space.

The first part of the letters *m* and *n* may be taken next in order, singly, and in groups, as before, then the last part, and the two letters. They should be kept some days upon each of these copies if taking them for the first time. (See Appendix, §§ 4 and 5.)

Before taking any new principle, let these be combined in every way. Let the children observe that, in printing, each letter is distinct and separate, and, when words are made, set side by side only; but that in writing, they must be joined together. A variety of ex-

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ercises may be given by combining two, three, or four letters of the same kind, then different letters.

The letter *i* involves no new idea, except the placing of the dot. See Appendix, § 3, and illustrate and simplify the statements for the children. As each new letter is introduced, let the class combine it in all possible ways with the others they have had, as a means of connecting letters nicely, and also of keeping past lessons in mind.

The letter *x*, the last in the line (see Lesson XXI., Card XI.), may be taken in its place, or left till some of the more commonly used letters have been taught. The only new element is the cross-line; and if the slates are ruled, there is no difficulty. It will be observed that all these letters resemble each other.

The Appendix gives so clear a statement of each letter, that it is unnecessary to take each by itself; the teacher is cautioned against using the statements there given with young children. With the card before them, it will be easy for the teacher *to draw from them* ideas in reference to each letter. For instance, in teaching the letter *v*, a few questions will draw from any child, that the first part is like a part of *m* and *n*, another part is like a part of *o*, and the finish, or last part, a curve in a horizontal direction; also that it touches the base line at two points, and the top line in three, filling one space; but each point must be elicited by a separate question, or the effort of mind will be too great.

The letter *o* should, perhaps, be taught first in the

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second line of letters, partly because it is more easy, but also because it will help to make one or two familiar words, and so hold the interest of the class for a longer time. With children older than those of the second year at school this may not be needful, but for these the teacher can hardly go too slowly. Such words as on, no, moo, moon, noon, ox, mix, in, with other combinations not making words, as oi, ou, uo, iou, may be used.

When *a* has been taught, a larger number of words can be made; the children should be encouraged to think of some word that the letters they already have will make, and write it. It will be difficult, with the whole alphabet before the children, to prevent them from trying all, instead of confining themselves to the copy for the day. Careless habits will be the result of such superficial work; it should, therefore, be guarded against as far as is possible.

In connection with Lesson XXII. and the Appendix, the teacher completes the alphabet. The small letters placed over each will help the class to learn its name. In her ordinary writing upon the board, or in a word or sentence placed there for the purpose, the teacher can help the class in reading written words by spending five minutes, occasionally, in calling upon those who are liable to mistake, for some letter they see, in the word upon the board, then letting all the letters be found and the word spelled, some one pointing at the time to each letter.

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The card should also be studied in reference to the height of letters, as an aid to memory. One letter may be taken, and all the children directed to find it on the card, then to study it, and raise the hand when anything is discovered. Such statements as the following may be given with no help from the teacher, though, perhaps, not in the order here taken: *p* has three parts; the first begins at the bottom, and fills two spaces; the second is a standing straight line, four spaces long; the last part fills one space — is like the last part of *h*.

The common practice of writing the alphabet as a copy is unnatural, and less helpful than making words with the card for a copy. If, with the card before them, the children are encouraged to make words, it will be of much greater advantage.

CARD XII.

LESSON XXIII. — The words upon the card are selected mainly with reference to the variety of letters, nearly the whole alphabet being represented. They can be used in a variety of ways. In case one word, as, for instance, *lane*, is chosen for a lesson for the first time, the pupils may be required to write a line of *l*'s across the slate, below them a line of *a*'s, then *n*'s and *e*'s; when this is done, to combine the first two letters, then the last two, the first three, the last three, then the

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four which make the word. Any expedient which keeps them interested and busy will be of value.

LESSON XXIV. comprises the Capital Letters and the Figures; the latter may be taken at any time, the former should not be until the small letters are in familiar use, and written with ease and accuracy. They are introduced here as necessary to complete the idea, and valuable for the children to observe and identify, but not to write until their third year in school. When they are taken, our experience has been, that only very simple statements are of value, the children learning, for the most part, by observing the teacher, and comparing their work with hers. The statements of the Appendix, §§ 9, 10, 11, and 12, will instruct the teacher where this is necessary with regard to their proportions.

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APPENDIX.

ANALYSIS OF THE WRITTEN ALPHABET.

1. The slanting straight line made by a downward movement is required in twenty-two of the twenty-six small letters; that is, in all except *c*, *e*, *o*, *s*.

2. There are six Principles — so called — by the union and connection of which, with the aid of a few exceptional forms, all the small letters are made.

3. The ***First Principle*** is best seen in the last part of *u*. It consists of the slanting straight line, the turn, and the connecting line — the latter to be carried to the same height as the straight line, with more slant. The width of this principle at the top should be a little less than the vertical height. The letter *u* is formed from the First Principle written twice, the right curve being written as a connecting line before it.

The letter *i* is the First Principle preceded by the right curve or connecting, as in *u*. A small dot must be placed over it, the height of the letter above it, and on the slant of the main line. The straight line, downward curves, and ovals, are main lines.

4. The ***Second Principle*** is the first part of *n*. To write it, carry the left curve to the top line — for directions in reference to these lines, see Instruction in Writing, p. 69, — go well over at the top, and make a slight bend to complete the turn, and descend straight and slanting.

Note. — The fault to be guarded against is the not carrying the up stroke far enough over at the top, thus making the turn vertical instead of oblique.

5. The ***Third Principle*** is the last part of *n*. It begins like the Second Principle, and not like the First — in fact, it is the union

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of these in the straight line. The letters *m* and *n* are formed from the Second and Third Principles.

The letter *x* is the Third Principle crossed through the middle by a slanting straight line. The letter *v* is formed from the Third Principle, slightly modified by carrying the last up stroke closer — at the top — to the main line, then returning on it a very short distance for the dot, or bulb, and adding a horizontal connecting line. The first part of *w* is the Third Principle modified as in *v*; the last part is the First Principle modified in like manner and finished like *v*.

The letter *o* is an oval; the left curve is used for the first connecting line, and a horizontal curve for the last. Take care that the *o* is made narrow on the main slant, and that the curves are similar, though reversed.

6. The first part of *a* is the ***Fourth Principle.*** It is written by carrying the left curve over as far as the second point of a *u*, then retracing and descending with a long curve, then making a narrow turn, and running up directly to meet the upper end of the first line. To complete the *a* add the First Principle.

NOTE. — The most common faults in writing the Fourth Principle are, not carrying the first line far enough forward, and dropping it down at the end; turning too soon, and sagging at the right side of the turn; and making the main line of the First Principle run down on the up stroke of the Fourth, whereas it should join it at the top only.

The letter *c* is formed from the left side of *o*. Begin as in *n*, with the left curve; make the turn, and begin the straight line; stop short; retrace, and descend with the left side of the oval; make a narrow turn, and finish with the right curve.

NOTE. — Take care that the nose is not too long; that it does not project instead of being on the downward slant; that the oval part is not too much rounded, nor turned too soon, and that the turn is not too broad.

The letter *e* is also formed from the left side of *o*. The right curve is used for a connecting line; this crosses the left side of the oval at one third of its height, and unites with it at the top.

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The letter *r* is formed by the right curve carried a little above the top line, returning on it a very short distance to form a dot, or bulb, dropping a short, vertical, straight line, and finishing with the First Principle.

NOTE. — Take care that the dot and the vertical straight line are not too long, and that the downward stroke of the First Principle has the proper slant.

The letter *s* begins like *r*, with the right curve carried a little above the line; this is retraced to the line; a delicate swell, the right side of an *o*, descends, turns, and ascends on the left side like an *o*; this is retraced for the dot, or bulb, and, after leaving the bottom of the turn, ascends with the right curve for a connecting line.

This disposes of thirteen of the letters formed from the first four principles.

NOTE. — Do not allow the pencil to be raised until the word is finished.

The *stem* letters are *t*, *d*, *p*, and *q*. (See Card XI., Lesson XXII.) The height of *u* is called a *space*. These letters are two spaces high above the base line. The stems of *p* and *q* are two spaces below the base line.

The letter *t* is the First Principle extended. The slant of the connecting line must be changed at the height of one space, so that the down stroke may descend on it with the down slant.

The letter *d* is formed from the Fourth Principle and First extended.

For the letter *p* the connecting line must be written with less slant than usual, because it joins the stem so high up. The stem is a straight line, four spaces long; the pencil should be raised at the bottom of it. Beginning again at the point where it crosses the base line, the Third Principle is added.

The letter *q* begins like *a* and *d* with the Fourth Principle. The stem is a straight line, three spaces long, turned forward at the bottom, and finished by the left curve making a narrow fold and branching off at the base line.

7. The ***Fifth Principle*** is the first part of *h*. To write it,

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begin with the right curve, with the usual up slant; lessen the slant at the height of one space, carry it up three spaces from the base line, make a narrow turn, descend with a very slight left curve to cross the up stroke at the height of one space; then finish straight to the base line.

For *l*, turn and finish like the First Principle.

For *b*, turn and finish like *v*.

For *h*, add the Third Principle without turning.

For *k*, carry up the first line of the Third Principle closer to the looped stem and one third of a space higher than usual; make a loop, then descend as in *h*.

8. The ***Sixth Principle*** is the last part of *y*. To write it, begin at the top line, that is, one space above the base line, and descend to it with a slanting straight line; then curve very slightly to the right through two spaces, turn, and ascend with the left curve to cross at the base line, from which point the left curve is carried with increased slant to the top line.

For *j*, begin with right curve for connecting line, and place a dot over the Principle, as in *i*.

For *y*, begin with the Third Principle.

For *g*, write the Second Principle, and by a small shoulder join it to the loop of the Sixth Principle.

The letter *f* has a fold below peculiar to itself. The upper part is the Sixth Principle. Continue this in a straight line, turn, and ascend with the right curve, crossing at the base line, and finish with a horizontal curve. It extends two spaces below the base line.

The small letters should be thoroughly learned, and executed with ease and accuracy, before commencing the capitals.

THE CAPITALS.

9. Three Principles are used in writing the capitals, viz.: the Capital Stem, or Seventh; the Direct Oval, or Eighth; and the Indirect Oval, or Ninth.

10. The ***Seventh Principle*** is the Capital Stem, as in *T*. It is a double curve, or "line of beauty," begun at the top, and written downwards, and finished with an oval half the height of the letter.

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Observe the slight curve of the upper part in *A*, *N*, *M*, and the increased slant with which it is written in these letters. In *H* and *K* it is half a space, and in *G* one space shorter than usual. In *T* and *F* the tops must not touch the stem.

11. The ***Eighth Principle*** is the Direct Oval, the capital *O*. Notice the varieties of this in *D*, *E*, *C*, and the finish of *X*. The width equals half the length.

12. The ***Ninth Principle*** is the Indirect Oval, as in the first part of *W*. Its width is half its length, and it occupies two thirds of the height of the letters in which it occurs.

The capitals should be written in the four horizontal lines, marking three equal spaces mentioned above. The *J*, *Y*, and *Z* descend two spaces below.

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Plate I.

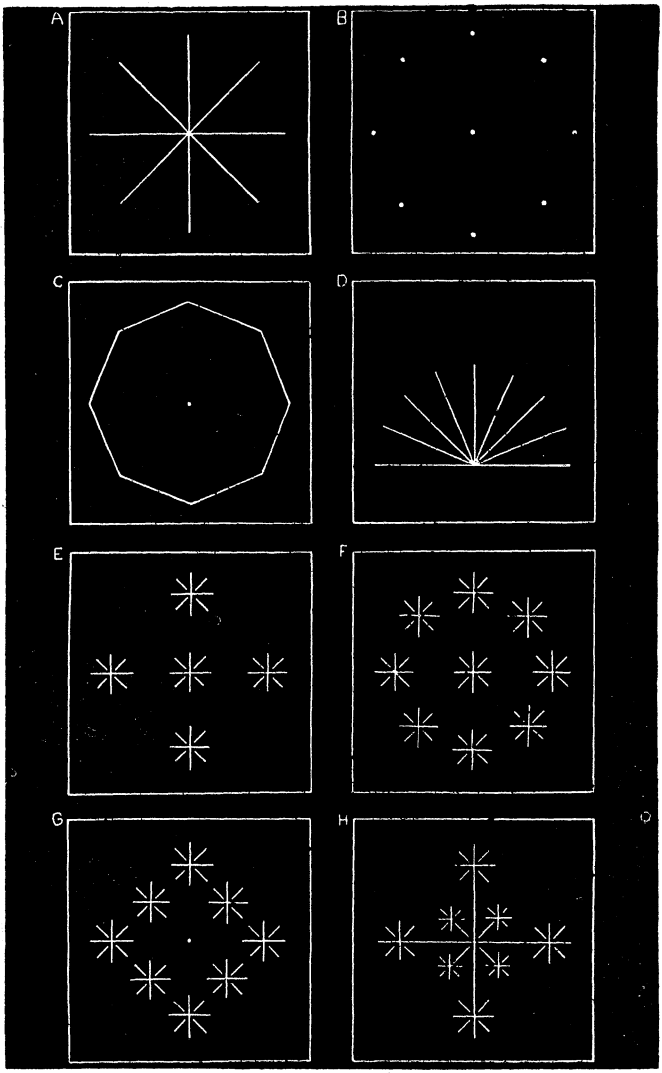

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Plate II.

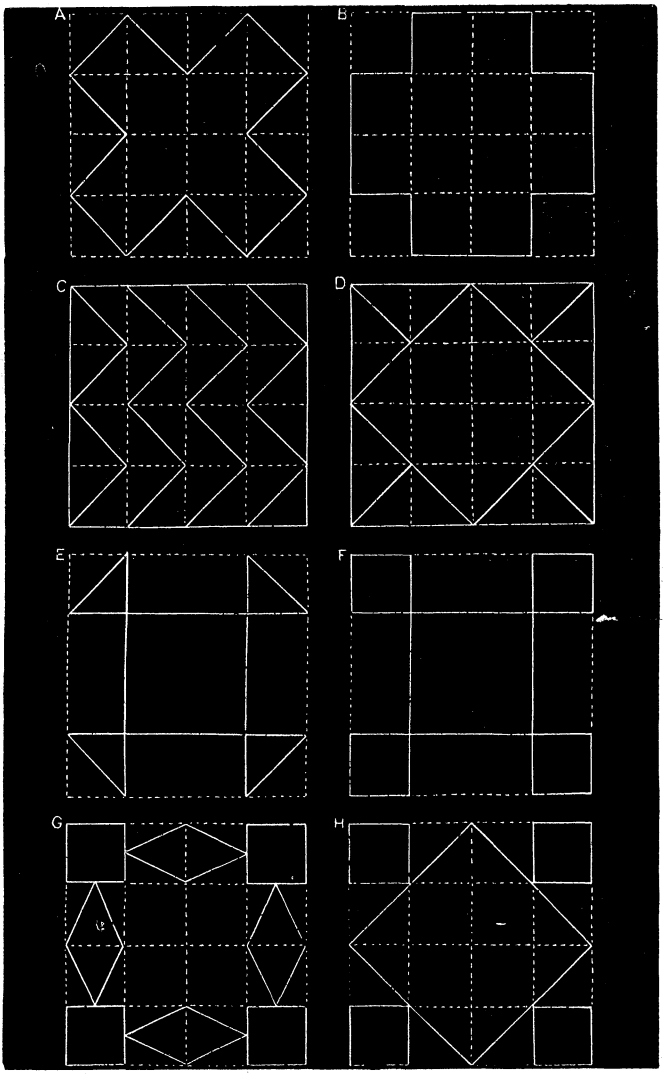

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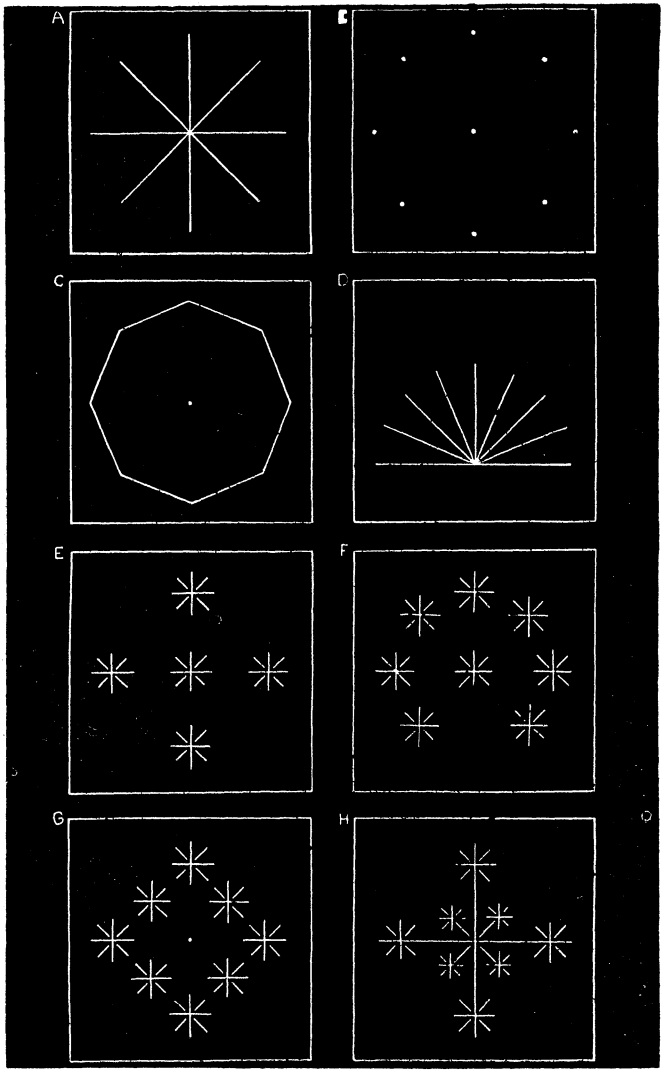
Plate III.



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